Tuna Newsletter

National Marine Fisheries Service
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IN THIS ISSUE

Issue 88 February 1988

- **The U.S. tuna industry in second and third quarters 1987:** Ex-vessel prices change dramatically.....1
- **Exploratory fishing indicates good prospects for South Pacific albacore fishery:** U.S. jig fishermen and NMFS assess prospects.....3
- **Tuna longline fisheries appear to adjust gear for economically valuable species:** Vessels change fishing operations in response to market demand.....6
- **Tuna researchers in a net:** Long-distance computer communication is used to exchange information.....7
- **39th Tuna Conference announced:** Presentations solicited 7
- **Recent developments in tuna fisheries:** News from the western Pacific, Japan, Korea, Mexico, the U.S., and Venezuela.....8

Wes Parks, Editor

THE U.S. TUNA INDUSTRY IN SECOND AND THIRD QUARTERS 1987

The number of vessels in the U.S. tropical tuna purse seine fleet at sea was down 3% in the second quarter and down 10% in the third quarter of 1987, compared with the number of vessels at sea for the second and third quarters of 1986 (Table 1). Total capacity was down 3% for the second quarter and 10% for the third quarter. There was no effort by U.S. vessels in the Indian Ocean in either the second or third quarters of 1987.

Table 1. Number of active U.S. purse seine vessels and capacity (short tons) in the second and third quarters of 1987 and 1986.

AREA	1987	1986
Second quarter		
	No. of vessels	
W. Atl	0	1
E. Pac	37	37
W. Pac	32	33
Total	69	71
	Capacity	
W. Atl	0	780
E. Pac	35,295	36,105
W. Pac	39,975	40,575
Total	75,270	77,460
Third quarter		
	No. of vessels	
W. Atl	0	2
E. Pac	36	37
W. Pac	30	33
Total	66	72
	Capacity	
W. Atl	0	1,980
E. Pac	34,205	36,205
W. Pac	37,275	41,175
Total	71,480	79,360

Deliveries of all tuna species to U.S. canneries during the second quarter of 1987 totaled 130,841 short tons, down 4% from deliveries in the second quarter of 1986 (Table 2). Third-quarter deliveries totaled 157,135 short tons, up 18% from 1986. Cumulative deliveries for the first three quarters of 1987 were 405,478 short tons, up 3% compared to cumulative deliveries in 1986. Although cumulative domestic deliveries were up 15% from 1986 deliveries, cumulative imports were down 7%.

Yellowfin and skipjack dominated cumulative deliveries of tuna to U.S. canneries through the third quarter of 1987, comprising 47% and 35% of total deliveries.

Deliveries of albacore to U.S. canneries in the second quarter of 1987 were 20,088 short tons, down 43% from deliveries in the second quarter of 1986. Deliveries of albacore in the third quarter were 30,899 short tons, down 8% from 1986. Cumulative deliveries through the third quarter of 1987 were 74,755 short tons, down 20% from cumulative deliveries in 1986. The eastern Atlan-

Table 2. U.S. cannery receipts of domestic and imported raw tuna (short tons) by species for second and third quarters of 1987 and 1986.

YEAR	SOURCE	SPECIES ALB	SJ	YF[1]	TOTAL
		Second quarter			
1987	Domestic	14	28,689	45,245	73,948
	Imported	20,074	14,829	21,990	56,893
	Total	20,088	43,518	67,235	130,841
1986	Domestic	147	23,146	31,819	55,112
	Imported	35,374	24,401	22,113	81,888
	Total	35,521	47,547	53,932	137,000
		Third quarter			
1987	Domestic	1,216	18,392	41,685	61,293
	Imported	29,683	34,198	31,961	95,842
	Total	30,899	52,590	73,646	157,135
1986	Domestic	2,345	22,842	38,636	63,823
	Imported	31,271	23,513	14,770	69,554
	Total	33,616	46,355	53,406	135,377
		Cumulative through third quarter			
1987	Domestic	1,299	68,627	124,535	194,461
	Imported	73,456	71,320	66,241	211,017
	Total	74,755	139,947	190,776	405,478
1986	Domestic	2,509	63,453	102,862	168,824
	Imported	91,353	73,728	60,678	225,759
	Total	93,862	137,181	163,540	394,583

[1] Includes a small amount of bigeye and blackfin tuna.

tic, western Atlantic, and western Pacific were the major fishing areas for albacore (Figure 1).

Second-quarter deliveries of skipjack tuna to U.S. canneries, 43,518 short tons, were down 8% from deliveries in the second quarter of 1986. Deliveries of skipjack in the third quarter were 52,590 short tons, up 13% from 1986. Cumulative deliveries through the third quarter of 1987 were 139,947 short tons, up just 2% from cumulative 1986 deliveries. The western Pacific was the major fishing area for skipjack through the third quarter for both 1986 and 1987 contributing 58% of total deliveries in 1987 (Figure 2).

U.S. cannery receipts of yellowfin tuna for the second quarter of 1987 were 67,235 short tons, up 25% from 1986. Receipts of yellowfin in the third quarter were 73,646 short tons, up 38% from 1986. Cumulative receipts through the third quarter of 1987 were 190,776 short tons, up 17% from cumulative receipts in 1986. As in 1986, the major fishing area for yellowfin was the eastern tropical Pacific, which contributed 65% of the total in 1987 (Figure 3).

Major non-U.S. suppliers of raw tuna to U.S. canneries during the second quarter were South Korea, Mexico and Venezuela, while major third-quarter non-U.S. suppliers were South Korea, Mexico and the Solomon Islands. On a cumulative basis, South Korea, Mexico and Venezuela were the major non-U.S. suppliers through the third quarter 1987, together contributing 31% of total imports (Table 3).

Contract prices for U.S. vessels delivering raw tuna to U.S. canneries in Puerto Rico increased dramatically from the first to the third quarter of 1987 (Table 4). The price for 7.5 lb and larger skipjack tuna in the third quarter of 1987 was $1000 per short ton, up 43% from the price in the first quarter. The third-quarter price for 20 lb and larger yellowfin was $1,125 per short ton, up 44% from the first-quarter price. Actual prices paid to U.S. domestic contract vessels may be adjusted depending on temperature, salt content and physical condition of the fish at the time of unloading. Prices paid to non-contract domestic and foreign vessels vary according to market conditions.

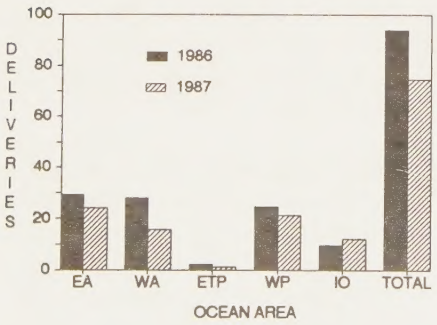

Fig. 1. Cumulative deliveries through third quarter of albacore to U.S. canneries (1000 short tons) by ocean area of capture

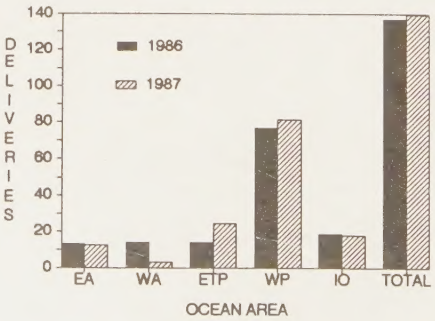

Fig. 2. Cumulative deliveries through third quarter of skipjack tuna to U.S. canneries (1000 short tons) by ocean area of capture.

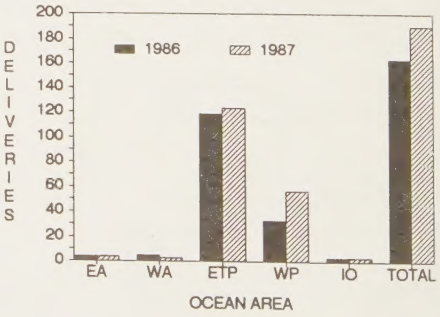

Fig. 3. Cumulative deliveries through third quarter of yellowfin tuna to U.S. canneries (1000 short tons) by ocean area of capture.

Table 3. Cumulative U.S. cannery imports of raw tuna (short tons) by species and country through third quarter 1987.[1] Also listed are total imports for all species through the third quarter 1987 and 1986.

	SPECIES			TOTAL	
COUNTRY	**ALB**	**SJ**	**YF[2]**	**1987**	**1986**
South Korea	9,986	9,139	10,418	29,543	22,257
Mexico	0	1,018	17,856	18,874	1,233
Venezuela	6	3,861	12,837	16,704	22,726
Ivory Coast	297	12,538	3,718	16,553	15,403
Seychelles	8	12,542	2,806	15,356	17,276
South Africa	14,402	0	2	14,404	22,613
Taiwan	9,918	2,191	1,397	13,506	12,309
Ecuador	0	5,984	4,257	10,241	14,453
Solomon Is.	0	7,575	1,513	9,088	0
Vanuatu	0	4,924	3,757	8,681	1,622
Neth. Antilles	6,662	14	241	6,917	12,623
Mauritius	6,442	0	72	6,514	6,031
Madagascar	82	5,360	359	5,801	4,791
Panama	0	141	5,146	5,287	18,558
Trinidad	4,554	39	555	5,148	5,890
Spain	4,759	0	0	4,759	0
Canary Is.	4,691	0	8	4,699	6,577
Other	11,649	5,995	1,299	18,943	41,395
Total	73,456	71,321	66,241	211,018	225,757

[1] Country is either flag country of vessel or country exporting to the U.S.
[2] Includes a small amount of bigeye and blackfin tuna.

Table 4. Contract prices (U.S.$ per short ton) for raw skipjack and yellowfin tuna delivered by U.S. vessels to U.S. canneries in Puerto Rico for first and third quarters of 1987 and 1986.

	SKIPJACK		YELLOWFIN	
SIZE CLASS (lbs)	**1987**	**1986**	**1987**	**1986**
First quarter				
20 +	-	-	765-780	780-800
7.5 to 20	685-700	700	685-700	700
4 to 7.5	615-630	630	615-630	630
3 to 4	485-500	500	485-500	500
3 -	285-300	300	285-300	300
Third quarter				
20 +	-	-	1125	765
7.5 to 20	1000	685	1000	685
4 to 7.5	937	615	937	615
3 to 4	725	485	725	485
3 -	450	285	450	285

Table 5. Wholesale list price in California for tuna canned in water for representative case packs (U.S. $ per short ton) for first and third quarters of 1987 and 1986.

CASE PACK	YEAR		ADVERTISED LABEL	PRIVATE LABEL
White meat[1]	1987	(1st Qtr)	55.40 - 55.95	43.50 - 45.50
		(3rd Qtr)	59.50 - 63.75	51.00 - 51.50
	1986	(1st Qtr)	54.75 - 55.95	42.00
		(3rd Qtr)	55.40 - 55.95	43.50 - 45.50
Light meat[2]	1987	(1st Qtr)	34.20 - 43.45	23.00 - 26.50
		(3rd Qtr)	42.45 - 45.00	29.00 - 31.50
	1986	(1st Qtr)	34.20 - 43.45	27.00
		(3rd Qtr)	34.20 - 43.45	24.50 - 26.50

[1]White meat: solid, 12.5 oz (24).
[2]Light meat: chunk, 6.5oz (48).

Wholesale list prices in California for tuna packed in water also changed from the first quarter to the third quarter of 1987 (Table 5). Third-quarter prices, as reported by cannery representatives and brokers, for advertised-label, white meat tuna canned in water ranged between $59.50 and $63.75 per case of 24, 12.5 oz cans, up 7% to 14% over first-quarter prices. The price range for private-label, white meat tuna was $51.00 to $51.50 per case, up 13% to 17% over the first-quarter price.

Wholesale list prices for advertised-label, light meat tuna canned in water in the third quarter were $42.45 to $45.00 per case of 48, 6.5 oz cans, up 4% to 24% from first-quarter prices. Prices for private-label, light meat tuna were $29.00 to $31.50 per case, up 19% to 26%.

Pat Donley, SWR
Wes Parks, SWFC

EXPLORATORY FISHING INDICATES GOOD PROSPECTS FOR SOUTH PACIFIC ALBACORE FISHERY

Prospects for establishing a U.S. troll fishery on albacore in the South Pacific appear to be excellent based on the experiences of fishing vessels that conducted exploratory trolling in 1986 and 1987. High catch rates, high total catches and relatively good weather, combined with the infrastructure in the South Pacific for selling catches and supporting vessels are evidence that it is economically feasible for U.S. albacore fishing vessels to operate there.

From February through March 1986, two U.S. fishing vessels, each receiving financial support from Salstonstall-Kennedy funds awarded to the Pacific Fishery Development Foundation in cooperation with the Western Fishboat Owners Association, conducted trolling exploration for albacore in the South

Pacific. Both vessels made good catches.

The experience gained in 1986 provided optimism that a U.S. albacore troll fishery could be established in the South Pacific. However, substantially more fishery exploration and knowledge of the migratory patterns and the biology of the population were required. The 1987 survey was designed to assist in obtaining the needed information.

Seven U.S. fishing vessels conducted exploratory troll fishing for albacore in the central South Pacific from January through April 1987 (Figure 1). Five of the fishing vessels received a fuel subsidy derived from Saltonstall-Kennedy funds. In addition to carrying out exploratory fishing, the vessels worked in conjunction with scientists from the Southwest Fisheries Center conducting an oceanographic and troll fishing survey aboard the NOAA Ship *Townsend Cromwell* from January through February. Oceanographic sampling and albacore trolling exploration were also conducted by research vessels from New Zealand and France (Figure 1).

The vessels conducted exploratory fishing for albacore using standard U.S. commercial troll fishing methods. All the vessels were equipped with sea surface temperature gauges and fish sounders and some had chromascopes to aid in locating potentially favorable fishing areas. In addition, NOAA's National Ocean Service outfitted two of the vessels with expendable bathythermographs and XBT probes for measuring subsurface profiles of ocean temperature.

Good catches and catch rates were experienced by the five boats operating in the fishing area between 36° to 41° S and 135° to 155° W. From January 5 through April 16, 1987, the catch per day was 0 on about 6% of the boat days, more than 100 fish on 68% of the boat days, greater than 250 fish on 55%, and greater than 500 fish on 33% of the boat days (Figure 2). There were 8 boat days, nearly 4%, when the catch per boat was over 1,000 fish. The largest catch made in one day was 1,241 fish by the *Defiance*.

The total amount of albacore landed by all seven boats was 825 tons. The average number of albacore caught per day by each vessel ranged between 234 and 459 fish, and the average weight of the albacore caught per day by each boat ranged between 1.89 and 3.68 t per day.

Sizes of albacore caught ranged between about 4 and 60 lb, with 11 to 13 lb and 18 to 24 lb fish predominating (Figure 3). Fishermen reported catching a small number of fish that weighed about 4 lb, although they usually released fish smaller than 10 lb. The average weight of the albacore caught by each vessel for all trips ranged from 16.0 to 16.9 lb, and the overall

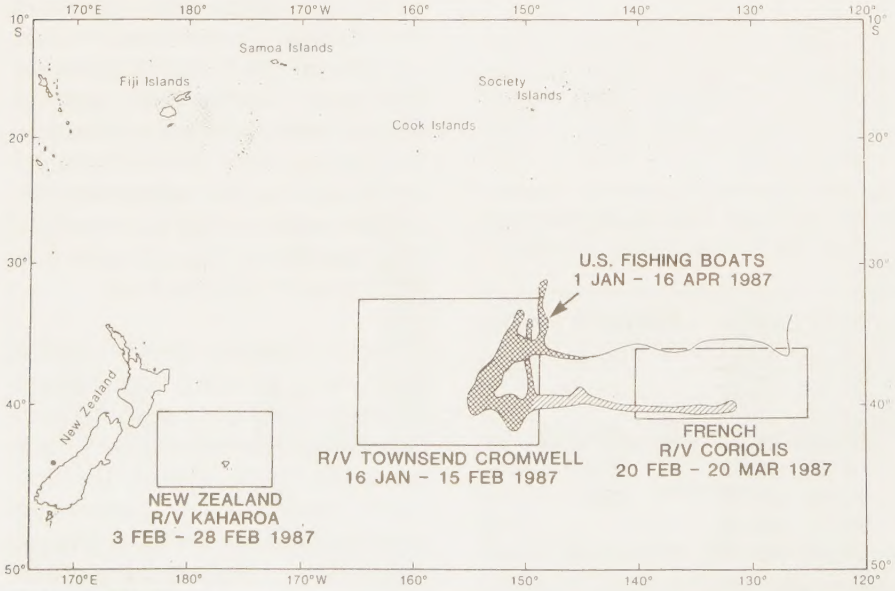

FIGURE 1. Area of the South Pacific albacore survey in 1987.

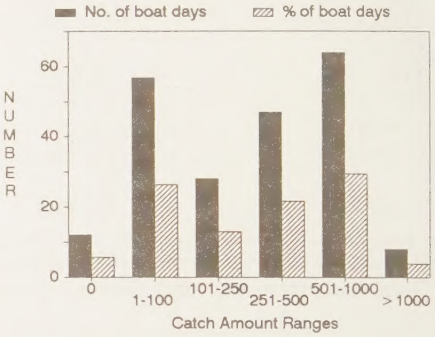

FIGURE 2. Albacore catch per day and number and percentage of boat-days fished by five vessels.

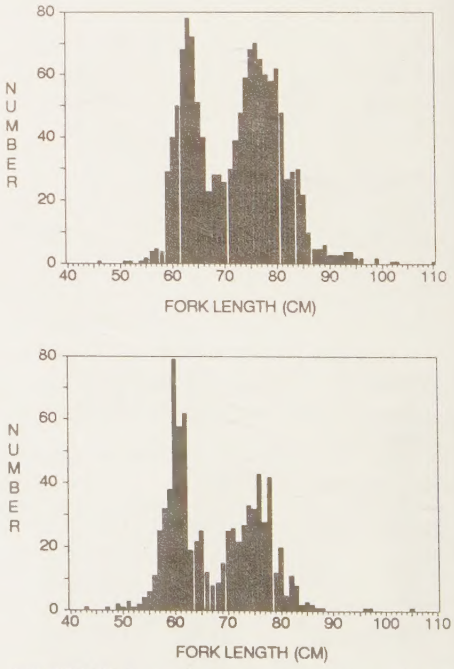

FIGURE 3. Length frequencies of albacore tagged (upper) and length frequencies of albacore sampled from fishing vessels unloading in Papeete (lower).

average for all boats for all trips was 16.4 lb.

Catch, effort and catch per unit effort varied spatially and temporally. From January through February, fishing effort was spread over a relatively broad range of longitude between about 125° and 156° and a range of latitude between about 34° and 41° S. Nonetheless, fishing effort was concentrated, and the total catch and the catch per day were highest in the meridional band between 150° and 155° W and the latitudinal zones between 36° and 38° S and 39° and 40° S. From January through February in the region between 150° and 155° W, there were 128 boat days of fishing effort and the average catch per day was 440 albacore. East of this region, however, the number of boat days was 11 or fewer and the catch per day was fewer than 45 fish. West of 155° W, the catch per day was relatively high, 286, although there were only 3 boat days of fishing effort.

The region of highest albacore availability appeared to shift to the east and south during March and April. Most of the fishing effort and the highest total catch and catch per unit effort were east of 145° W and south of 39° S.

Although there were periods of a week or so when the fish went "off the bite," the fishing success was as high when the boats quit fishing during the first half of April as it was when boats were first "on the fish" during the second half of January (Figure 4).

Sea surface temperatures (SST's) in the survey area from mid-January through mid-February ranged from about 62° to 70° F. Mixed-layer depths to the top of the thermocline ranged from about 30 to 110 ft. Depths to the middle of the thermocline were near about 100 to 150 ft, depths to the bottom of the thermocline were from about 150 to

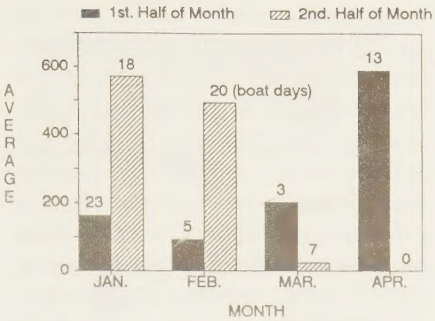

FIGURE 4. Average daily catches by two fishing vessels by half-month periods. Numbers at the top of the histograms are the number of boat days fished.

250 ft, and thermocline gradients ranged from about 3° to 8° F.

Fishing vessels and the *Townsend Cromwell* recorded SSTs ranging from about 62° to 70° F from mid-January through mid-February (Figure 5). The isotherms, which were more or less zonal east of about 152° W, were bowed to the southwest between 152° and 162° W and were bent to the northwest, west of 162° W. As a result of this pattern, the SSTs at a given latitude were several degrees warmer with increasing longitude to the west. For example, the 67° F isotherm, which was found near 36° N at about 150° W, extended south to about 42° S at 162° W.

Albacore were caught from waters having SSTs ranging from 60 to 69° F, although 69% of the catches

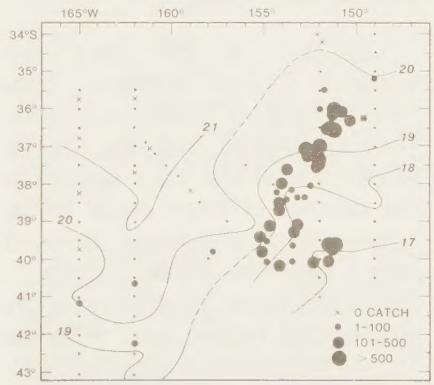

FIGURE 5. Distribution of SST's and albacore catches by the *Cromwell* and two fishing vessels.

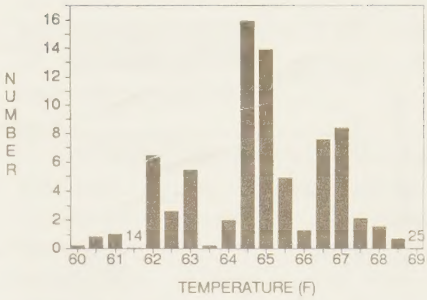

FIGURE 6. Number of albacore caught by the vessels in sea surface temperatures of 60°- 69°F.

were made from water with SSTs between 64.5 and 67.5 (Figure 6).

Wind and sea conditions while the boats were in transit from California to Papeete and to the fishing grounds were generally good. Trade winds were light to moderate and seas were relatively calm. Winds were less than 10 kn about 44% of the time, between 21 and 30 kn 17% of the time, and greater than 30 kn about 4% of the time. The worst weather conditions during the survey operations were experienced by the *Defiance* after completing the last trip. A strong weather system with winds in excess of 60 knots passed over the area where the *Defiance* was in transit, and seas of greater than 40 ft were recorded for a few days.

Catches were sold in Papeete for prices averaging approximately $1,300 per short ton. Small amounts of fish were rejected because they were badly misshapen, broken or split and judged to be of inferior quality.

The infrastructure for supporting vessel needs and selling catches is available at three locations in the South Pacific: Papeete, Tahiti; Pago Pago, American Samoa; and Suva, Fiji.

Mike Laurs, SWFC

Editor's note: *As a result of the exploratory fishing conducted in 1986 and 1987, 45 U.S. trollers*

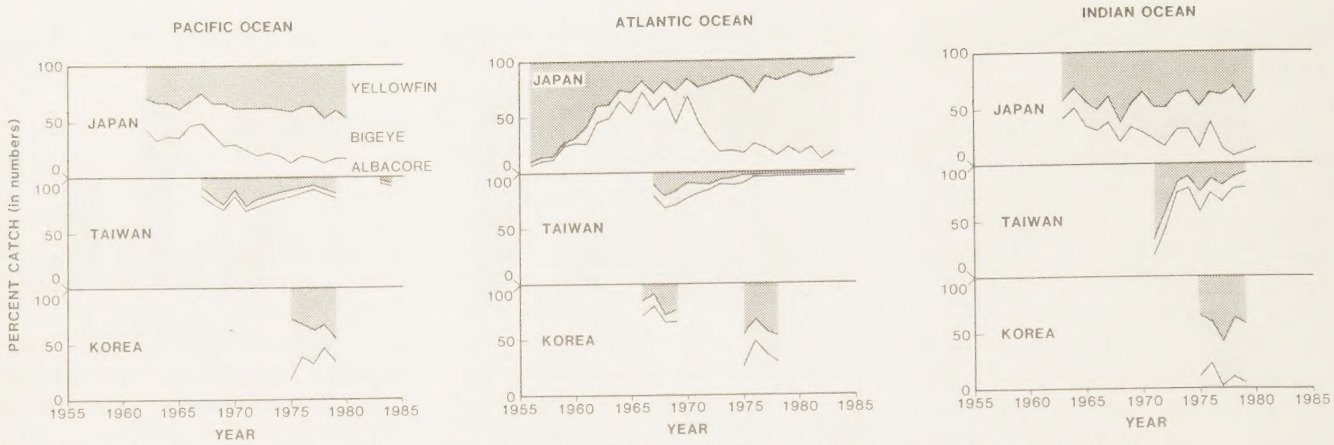

FIGURE 1. Species composition of catches by longline fisheries of Japan, Korea and Taiwan,, 1955-1985.

departed from west coast ports in early December 1987 to fish for albacore in the South Pacific. Vessels hailing from California to Alaska and from Honolulu will participate in the fishery and plan to operate initially in the area from 35° to 40° S and 150° to 155° W, approximately 5000 nm from San Diego. About half of the vessels--most are in the size range of 80 to 90 ft--will proceed directly to the fishing grounds; others will stop to refuel in Papeete, Tahiti.

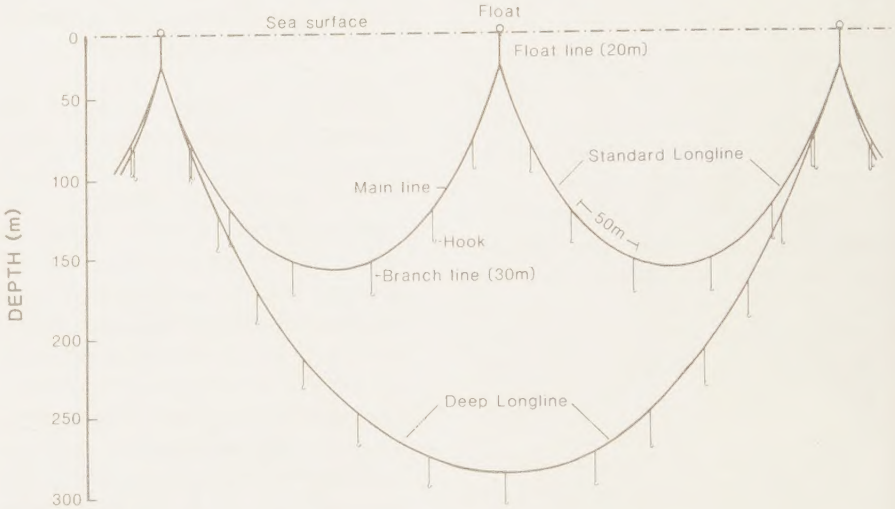

FIGURE. 3. Method of setting standard and deep tuna longline gear.

TUNA LONGLINE FISHERIES APPEAR TO ADJUST GEAR FOR ECONOMICALLY VALUABLE SPECIES

The species composition of tuna catches by large Asian longline fleets has shifted over time. Much of the observed change appears to be driven by the market and a change in economic conditions as opposed to being driven by the availability of the resource. As part of the strategy of fishing for the markets, the Asian longliners developed the ability to target on certain species with a gear that was previously thought to be relatively nonselective for targeting particular species.

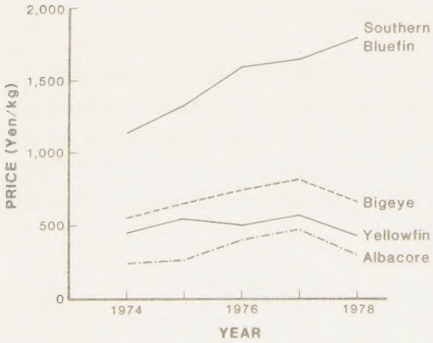

FIGURE 2. Prices in Japan of major species of sashimi-grade tuna, 1974-1978.

Scientists at the Southwest Fisheries Center examined data from the longline fishery for patterns. They discovered that the relative proportions of the major species in the catches of three major fleets, Taiwan, Korea, and Japan, changed over a long time period (Figure 1). Japan and Korea have increasingly emphasized bigeye tuna, whereas Taiwan has chosen to emphasize albacore. The emphasis has apparently been shaped by access to the high quality sashimi market in Japan. Both Korea and Japan have access to the Japanese market and are targeting on bigeye. Taiwan, which does not have access to the Japanese sashimi market, has chosen to target for albacore for export to the nonsashimi world market (particularly the U.S.). Albacore brings the highest price in the nonsashimi markets.

The period from 1974 through 1978 was a time of rapid change in species composition of the longline catches. Selling prices in Japan of major species of sashimi-grade tuna rose steadily from the beginning of the period to 1977 and then declined (Figure 2). With the exception of southern bluefin tuna, which is in short supply and cannot produce large catches, bigeye tuna fetches the highest price.

Examination of the catches of the three fleets when fishing in the same areas at the same time showed that species compositions were different and biased to the particular target for that fleet. This was attributed to how the longline gear was set. Deep fishing (Figure 3) produced more bigeye tuna than yellowfin tuna. Fishing the gear at shallower depths produces higher albacore catches. This results in the ability of longline gear to target on a desired species to a greater degree than was previously thought.

Norm Bartoo, SWFC

TUNA RESEARCHERS IN A NET

Two fishery biologists, Pierre Kleiber, at the Southwest Fisheries Center, and Michel Petit, of Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM) in Montpellier, France, have been communicating with their colleagues around the world using computer-based communication nets. They report great advantages in the rapid exchange of messages and also of text and data files.

To communicate with each other (between California and France), they have been using BITNET (alias EARN in Europe, alias NETNORTH in Canada), a network of almost 2000 computers connecting universities, schools, and centers of research in all disciplines in Europe, Africa, Middle East, United States, Canada, and Japan. It is open without charge to researchers from all disciplines without any special authorization other than having access to one of the computers in the network. The principal services offered are electronic mail (e-mail), and exchange of files (data, programs, text). Kleiber and Petit have used their BITNET connection to send messages concerning logistics for meetings and to exchange information about papers in preparation. They used it to compose this and another similar report submitted as a working paper to the latest Standing Committee on Research and Statistics meeting. They have found that sending an e-mail message only takes a few minutes. Compare this with the many more minutes often wasted in the familiar telephone hide and seek. E-mail is often transmitted half-way around the globe in less than an hour, and a reply can be expected shortly after the recipient happens to log onto the system, usually within a day or two for active users.

Kleiber has been connected for several months to an electronic conference on tuna which is maintained primarily by the South Pacific Commission and which makes use of the Electronic Information Exchange System (EIES). Because EIES is a commercial network service, there is a fee involved in its use. This amounts to about $20 to $30 per month for a typical amount of connect time.

The South Pacific Commission originally established the electronic tuna conference to facilitate planning for an international research effort on southern Pacific albacore tuna, but its use has expanded to a wide variety of tuna-related communications. There are about a dozen researchers now connected to this system. Kleiber has been using it extensively to facilitate organizing a fishery interaction working session for an upcoming FAO-sponsored meeting on Pacific tuna. Right now there is an on-going lively debate via this electronic conference on just how highly migratory tropical tuna really are and the implications for management of tuna fisheries.

A bewildering number of other commercial and non-commercial computer networks exist around the globe and are much used in many fields of endeavor. Interconnections between different networks are being rapidly established so that now some sort of e-mail linkage can be found to most corners of the world. Including e-mail addresses on business cards is becoming an accepted practice.

The world of tuna fishing and tuna research, being a truly global enterprise, should be a natural beneficiary of global computer communication. Kleiber's and Petit's BITNET addresses are:

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They look forward to electronically "hearing" from more of their colleagues around the world.

Pierre Kleiber, SWFC
Michel Petit, ORSTOM

39TH TUNA CONFERENCE ANNOUNCED

The 39th Tuna Conference will be held May 15-18, 1988, at the UCLA Conference Center, Lake Arrowhead, California, USA.

The Tuna Conference provides an informal opportunity for persons interested in tunas and their fisheries to communicate and discuss ideas, topics, and results of research. This year the Conference will highlight the theme "**Tuna - A Worldwide Resource.**" Sessions on tuna fisheries, economics, statistics, and biology are planned. Additionally, a poster session is planned.

Participants are encouraged to present papers and posters at the Conference. Titles and a brief description of planned presentations should be sent to the Conference Chairman by March 30, 1988. The cost of attending the Conference is approximately $225-270,

depending on accommodations desired and includes all meals.

Reservations for the Conference may be made by writing to the Chairman. A deposit of $95 (one night's lodging plus the registration fee of $20) is required to hold the reservation.

Norman W. Bartoo, Chairman
39th Tuna Conference
NOAA/NMFS/SWFC
P.O. Box 271
La Jolla, California 92038 U.S.A.

MEETINGS

- March 8-10, 1988. Fourty-fifth meeting of the Commission. Inter-American Tropical Tuna Commission (IATTC). La Jolla, CA. J. Joseph, IATTC, Scripps Institution of Oceanography, La Jolla, CA 92093, U.S.A.
- May 15-18, 1988. Tuna Conference. Lake Arrowhead, CA. N. Bartoo, SWFC, P.O. Box 271, La Jolla, CA 92038, U.S.A.
- June 22-27, 1988. Expert consultation on stock assessment of tuna in the Indian Ocean. Indo-Pacific Tuna Development and Management Programme (IPTP). Port Louis, Mauritius. T. Sakurai, IPTP, P.O. Box 2004, Colombo, Sri Lanka.
- November 2-10, 1988. Annual meeting of the Standing Committee on Research and Statistics. International Commission for the Conservation of Atlantic Tunas (ICCAT). Madrid, Spain. O. Rodriguez-Martin, ICCAT, Principe de Vergara, 17, 28001 Madrid, Spain.
- November 14-16, 1988. Special meeting of the Commission. ICCAT. Madrid, Spain. O. Rodriquez-Martin, ICCAT.

RECENT DEVELOPMENTS IN TUNA FISHERIES

Editor's note: *The following news articles were compiled from reports of the NMFS Branch of Foreign Fisheries Analysis, Office of International Fisheries, Washington, D.C. Dennis Weidner, Claudio de Chiara, P. Niemeier and John-Marc Clark contributed to these reports with the assistance of other NMFS officials and U.S. Foreign Service posts in Latin America.*

WESTERN PACIFIC

JAPAN AND FEDERATED STATES OF MICRONESIA DISCUSS FISHERY ACCESS-- A private-sector fisheries meeting between Japan and the Federated States of Micronesia was held in Honolulu from September 1-4. The negotiations were being watched carefully since the results could provide a basis for future talks on fishing access fees between Japan and other South Pacific island nations. Although Micronesia's initial proposal for access fees was 10% of the catch value (the main species caught are skipjack and bluefin tuna), the two countries finally agreed to keep the fee at the current 4%. The recent U.S.-South Pacific Federation Agreement on tuna fisheries access, which consisted of $10 million in fees paid by private companies and $50 million in U.S. Government development assistance, has prompted South Pacific countries to begin exploring a similar arrangement with Japan. Most observers believe that Japanese Government development assistance will be the focus of future Japan-Micronesia fishery negotiations, with increasing linkage between development assis tance and fishing fees. At present, Japan has active fishery agreements with seven South Pacific countries.

LATIN AMERICA

EL NIÑO--The sea surface temperature along the Pacific coast of Latin America remained slightly above normal during September 1987. Further out in the central Pacific, anomalies of 1° to 3° persist. There were no climatological side effects reported during September. Peru and Chile, however, are now reporting significant declines in their small pelagic (especially the anchovy) fisheries. In early 1987, only the Ecuadorian small pelagic fishery was being affected by the warmer than normal sea surface temperatures. It is unclear to what extent the Peruvian and Chilean catches are being affected by El Niño, intense fishing efforts, or other factors.

JAPAN

AIR-FREIGHTED SEAFOOD IMPORTS TO JAPAN REACH RECORD HIGH--Japan's Finance Ministry recently announced that air-freighted marine product imports reached 54,462 metric tons (t) during the first half of 1987, a 57% increase over the same period in 1986. Yellowfin tuna ranked first at 9,152 t, replacing eel which had been the number one air-freighted seafood import (Table 1). Yellowfin and eel were followed by bigeye tuna, crab,

Table 1--Major air-freighted marine products to Japan from January through June, 1986 and 1987.

Product	January-June 1986	January-June 1987
	Metric tons	
Yellowfin Tuna	7,237	9,152
Eel	9,374	8,868
Bigeye Tuna	1,368	2,929
Crab	2,479	2,908
Sea Bream	1,474	1,532
Shrimp	721	1,376
Salmon	350	1,057
Billfish	985	969
Sea Urchin	743	932
Bluefin Tuna	456	510
Other	9,502	24,229
Total	34,689	54,462

sea bream, and shrimp. Salmon showed a three-fold increase over last year, partly due to a rapid increase in imports from Norway. The strong yen and increased consumer preferences for delicacy foods are seen as the main reason for the great increase in air-freighted seafood imports.

KOREA

KOREA INCREASES ITS DISTANT WATER FISHING FLEET -- The number of vessels in the Republic of Korea's distant water fishing fleet reached 709 vessels as of August 1987. This is an increase of 56 vessels over the 1986 total of 653 vessels. Notable increases occurred in the tuna and squid fleets. The tuna fleet is up 20 vessels, from 242 in December 1986 to 262 vessels in August 1987, and the squid fleet increased 39 vessels from 168 to 207 vessels over the same period. Many believe the increase in Korea's tuna fleet, combined with relatively low operating costs, could give the Korean tuna industry the ability to undersell U.S. and Japanese tuna fishermen. An article in the Japanese press characterized this an "inevitable" trend and called for a "fundamental review" of Japan's skipjack industry.

MEXICO

MEXICAN 1977 TUNA CATCH DOWN SLIGHTLY -- Mexican fishermen took 84,000 t of tuna in the first 3 quarters of 1987, a 3% decrease from the 86,600 t taken during the same period of 1986. Most of the tuna was yellowfin. Mexico had hoped to catch 150,000 t of tuna in 1987, but fishermen appear to support the Secretary of Fisheries (SEPESCA) optimistic predictions. Mexico exports most of its tuna to Italy, but some is also shipped to Thailand, Spain, and the United States.

PRIVATE SECTOR LARGEST COMPONENT OF MEXICAN TUNA FISHERY -- Private companies dominate the Mexican tuna fishery. During the first 4 months of 1987 the private sector landed 90% of the national tuna catch. The public sector (government) and social sector (cooperatives) each took about 5% . Private companies fished with 40 vessels, the social sector operated 8 vessels, and the public sector operated 5 vessels.

MEXICO EXPORTS 15,000 TONS OF TUNA TO U.S. -- Mexico exported 15,100 t of tuna to the United States between September 1, 1986, and August 30, 1987, the first 12-month period following the lifting of the U.S. embargo. Mexico had voluntarily agreed to limit its first year of tuna exports to the United States to 17,500 tons. During the embargo, however, Mexican exporters developed alternate markets in Europe (principally Italy) and Asia. Even so, Mexico is reportedly anxious to resume shipments to the United States. The voluntary constraints for the second year of resumed tuna shipments permit exports of 22,500 t. No statistics are yet available on initial exports during this period.

MEXICO EXPORTS A GREATER PERCENTAGE OF TUNA CATCH -- Mexico is exporting an increasing percentage of its tuna catch. Mexico exported 41,000 t of tuna during the first quarter of 1987, almost 85% of the total catch for that period (47,700 t). During all of 1986, Mexico exported about 72,000 t, over 60% of the total catch (115,000 t).

MEXICAN EXPORTS FROM MAZATLAN INCREASE -- Mazatlan exporters shipped 11,200 t of tuna during the first 6 months of 1987, exceeding the 10,000 t shipped from Mazatlan for all of 1986. The increasing activity reflects efforts by port officials to attract tuna fishermen and make Mazatlan one of the country's major tuna ports. Good catches off Mazatlan and the strike in Ensenada during the early part of the year have increased the amount of tuna landed in Mazatlan. The Mazatlan Port Engineer and other sources suggest, however, that the port infrastructure in Mazatlan cannot accommodate large numbers of tuna boats.

NEW REGULATIONS FOR MEXICAN TUNA VESSELS IMPLEMENTED -- The Secretariat of Fisheries (SEPESCA) has implemented several new regulations governing the tuna industry. The new regulations, effective June 30, 1987, are designed to control the transshipment of tuna and ensure that vessels are adequately equipped with gear to limit incidental porpoise mortality. The regulations require all Mexican tuna vessels fishing in the Exclusive Economic Zone (EEZ) of other countries, and all Mexican vessels landing tuna in foreign ports, to have SEPESCA authorization. Each tuna vessel has to designate a homeport and a maximum of two alternate ports where it will land its catch. In addition, the vessels must allow scientists and other observers on boats during fishing trips. Finally, in each port, observers will ensure that each vessel has the required gear to prevent the incidental taking of porpoise.

NEW VESSEL JOINS MEXICAN TUNA FLEET -- The *Convemar* was built in the Tampico Naval Shipyard. It was financed by the Fondo Nacional para el Desarollo Pesquero (FONDEPESCA) and will be operated by Mexatun, an Ensenada-based company. *Convemar* was launched in June and has a carrying capacity of 1,090 t.

NEW MEXICAN CANNERY UNDER CONSTRUCTION--- Pescados de Chiapas, a seafood processing and canning plant, is under construction at Puerto Madero, Chiapas, a Pacific-coast port in southern Mexico near the Guatemalan border. The plant is owned and operated by a multinational investment group which hopes to complete its construction

by January 1, 1988. The investment group was formed by the state of Chiapas, French and Norwegian interests, and the Mexican Fisheries and Port Bank (BANPESCA).

The plant will have the capacity to process at least 20,000 t of fish annually, primarily tuna, to be delivered by Mexican and foreign vessels fishing off Mexico and Central America. The complex will have four tuna canning lines capable of handling 60 to 75 t of tuna per shift. Other facilities include a fish-filleting building, a 2,000 t cold storage fish meal plant, and a complete shark processing plant. The freezing and drying equipment is being purchased in France.

The construction of the Pescado de Chiapas processing plant at Puerto Madero will reportedly culminate a port development project that began during the Echeverría administration (early 1970s).

Pescado de Chiapas is part of Mexico's fisheries development initiative which focuses on efforts to become self-reliant in fisheries. One of Mexico's priorities has been its tuna fishery. The production plan for the Puerto Madero plant is based on the assumption that many of the 157 tuna seiners and baitboats fishing in the eastern tropical Pacific would prefer to land tuna and service their vessels at Puerto Madero rather than to transship their catch at Panamanian or northwestern Mexican ports.

MEXICAN INSTITUTIONS TO STUDY ALTERNATIVE FISH CANNING TECHNIQUES -- SEPESCA, the Consejo Nacional de Ciencia y Tecnologia (CONACYT), and the Secretariat of Programming and Budget will spend 3 billion pesos to research alternative techniques and materials for tuna and sardine canning. The research is in response to the need for cheaper canning materials to reduce consumer costs. Currently the can costs more than the raw material to be canned. Four national research institutions will be involved in the project.

MEXICO LIMITS LONGLINE OPERATIONS -- SEPESCA published new regulations in the *Diario Oficial*, severely reducing the areas where the longliners may operate. Essentially SEPESCA has prohibited longlining in a 75- to 80-mile coastal zone from Cedros Islands south to Manzanillo. Sports fishermen had been lobbying the Government for months to reduce or end longlining for billfish and other species of interest to recreational fishermen. Incomplete data suggest that striped marlin and other billfish catches have declined in recent years off Mexico. Recent catch rates, even without those for the especially poor 1984 season, are believed to be about half of the 1980 rate. Catches may have been particularly good during the early 1980s due to the Mexican Government's not allowing longlining in the late 1970s. The most important commercial longlining company is currently COPEMAPRO, an Ensenada based Mexican-Japanese joint venture, which operates 6 of the 13 longliners currently fishing along Mexico's Pacific coast. The primary target species is striped marlin, but swordfish is also taken during the winter. The longliners also report incidental catches of sailfish and bigeye and yellowfin tuna.

UNITED STATES

U.S. IMPORTS OF FISHERY PRODUCTS FROM LATIN AMERICA INCREASE -- U.S. imports of Latin American fishery products during the first 6 months of 1987 increased 11% to 255,000 t from 229,700 t during the same period in 1986. The value of the imports increased about 18% to $830 million. Shrimp imports, the most important commodity, increased 9% from 413,000 t for the first half of 1986 to 450,000 t for the same period of 1987. The increase was primarily due to expanding harvests of Ecuadorian cultured shrimp. Lobster was another important commodity, and, although the quantity of exports decreased 9%, the value rose about 25%. Tuna exports, the other major Latin American fishery export to the United States, decreased in value but increased 11% in quantity.

U.S. IMPORTS OF ALBACORE DECLINE -- The United States imported 42,200 t of albacore tuna through August 1987, a 19% decrease from the 51,900 imported during the same period of 1986. Several Latin American countries reported declines: Netherlands Antilles (-1,900 t), Trinidad (-1,700 t), Uruguay (-300 t), and the British Virgin Islands (-0.3 t). None of the countries, however, have significant albacore fisheries; they are principally transshipment points for Japanese and other foreign fishermen operating in the Atlantic.

U.S. SEIZES MEXICAN SHARK FISHING VESSELS -- U.S. Officials are concerned about increasing longlining by Mexican shark fishermen in the U.S. Extended Economic Zone. The United States Government may seek forfeiture of the five Mexican vessels seized June 13, 1987, in the Gulf of Mexico. The Coast Guard seized the vessels 3 to 6 miles inside the U.S. marine boundary. Several of these vessels were previously seized in April and at that time the masters were warned that repeat offenses could mean forfeiture of their vessels.

VENEZUELA

VENEZUELA RE-EVALUATES TUNA POLICY -- The Venezuelan Government is re-evaluating its tuna policy. Changes in its foreign exchange regulations at the end of 1986 have caused Venezuelan tuna fishermen to land almost all of their catch in Panama or other foreign ports. Most of the Venezuelan tuna catch is taken in the eastern Pacific. Until the 1986 changes in the foreign

exchange regulations, most fishermen were complying, to some extent, with regulations obliging the fishermen to land at least 40% of their catch in Venezuelan ports. As a result of fishermen landing most of their catch outside of Venezuela, there is now a serious shortage of tuna in Venezuela. Local canneries have had to restrict activities and in some cases close down. Since the development of an important tuna fleet in the 1980s, tuna has become the most popular canned fish in Venezuela. The canneries have been demanding that the Government begin to enforce the regulations requiring that some of the Venezuelan-caught tuna be landed in domestic ports. Government officials thought they had reached a compromise with the fishermen in early 1987, but the agreement has simply not worked. As a temporary measure, the Government has decided to lift the ban on fish imports and will allow the canneries to import tuna. The Government is allowing the canners to import tuna at a preferential exchange rate (about three times the free market rate of the bolivar). This means that one of the principal Latin American tuna fishing countries is subsidizing tuna imports. These developments are of interest because Venezuela, like the United States, could be adversely affected by the regional tuna agreement being promoted by Mexico and the Organization of Latin American Fisheries Development (OLDEPESCA). The OLDEPESCA agreement will reportedly be discussed at the coming Latin American Economic System meeting to be held in Caracas.

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